



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
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M

## NOTICE OF ALLOWANCE AND FEE(S) DUE

31450 7590 08/01/2003  
MCNEES WALLACE & NURICK LLC  
100 PINE STREET  
P.O. BOX 1166  
HARRISBURG, PA 17108-5300

EXAMINER

ROSENBAUM, IRENE CUDA

ART UNIT

CLASS-SUBCLASS

3726

029-889100

DATE MAILED: 08/01/2003

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,148	10/22/2001	Joseph David Rigney	13DV13878	4144

TITLE OF INVENTION: METHOD FOR REPLACING A DAMAGED TBC CERAMIC LAYER

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1300	\$300	\$1600	11/03/2003

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

## HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

☐ Applicant claims SMALL ENTITY status.  
See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

CS

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/086,148	RIGNEY ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Irene Cuda-Rosenbaum	3726	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to paper 6 filed 6/30/03.
2. ☒ The allowed claim(s) is/are 1-27.
3. ☒ The drawings filed on date are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No. \_\_\_\_\_.
  - (b) ☐ including changes required by the proposed drawing correction filed \_\_\_\_\_, which has been approved by the Examiner.
  - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892)  | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                    | 4 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____    |
| 5 <input type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. _____               | 6 <input type="checkbox"/> Examiner's Amendment/Comment                    |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|  | 9 <input type="checkbox"/> Other   |

*J. Cuda-Rosenbaum*  
*Per 3726*

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE  
Commissioner for Patents  
Alexandria, Virginia 22313-1450  
Fax (703)746-4000**

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

**CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)**

31450 7590 08/01/2003

**MCNEES WALLACE & NURICK LLC**  
100 PINE STREET  
P.O. BOX 1166  
HARRISBURG, PA 17108-5300

**Note:** A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above, or being facsimile transmitted to the USPTO, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,148	10/22/2001	Joseph David Rigney	13DV13878	4144

**TITLE OF INVENTION:** METHOD FOR REPLACING A DAMAGED TBC CERAMIC LAYER

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1300	\$300	\$1600	11/03/2003

EXAMINER	ART UNIT	CLASS-SUBCLASS
ROSENBAUM, IRENE CUDA	3726	029-889100

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.563).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_

## **3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)**

**PLEASE NOTE:** Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) ☐ individual ☐ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

- ☐ Issue Fee  
☐ Publication Fee  
☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s):

- ☐ A check in the amount of the fee(s) is enclosed.  
☐ Payment by credit card. Form PTO-2038 is attached.  
☐ The Commissioner is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

Commissioner for Patents is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature)

(Date)

**NOTE:** The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.** SEND TO: Commissioner for Patents, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMIT THIS FORM WITH FEE(S)



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,148	10/22/2001	Joseph David Rigney	13DV13878	4144
31450	7590	08/01/2003	EXAMINER	
MCNEES WALLACE & NURICK LLC 100 PINE STREET P.O. BOX 1166 HARRISBURG, PA 17108-5300			ROSENBAUM, IRENE CUDA	
			ART UNIT	PAPER NUMBER
			3726	9
DATE MAILED: 08/01/2003				

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The patent term adjustment to date is 86 days. If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the term adjustment will be 86 days.

If a continued prosecution application (CPA) was filed in the above-identified application, the filing date that determines patent term adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system. (<http://pair.uspto.gov>)

Any questions regarding the patent term extension or adjustment determination should be directed to the Office of Patent Legal Administration at (703)305-1383.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,148	10/22/2001	Joseph David Rigney	13DV13878	4144
31450	7590	08/01/2003	EXAMINER	
MCNEES WALLACE & NURICK LLC 100 PINE STREET P.O. BOX 1166 HARRISBURG, PA 17108-5300 UNITED STATES			ROSENBAUM, IRENE CUDA	
			ART UNIT	PAPER NUMBER
			3726	
DATE MAILED: 08/01/2003				

## Notice of Fee Increase on January 1, 2003

If a reply to a "Notice of Allowance and Fee(s) Due" is filed in the Office on or after January 1, 2003, then the amount due will be higher than that set forth in the "Notice of Allowance and Fee(s) Due" since there will be an increase in fees effective on January 1, 2003. See Revision of Patent and Trademark Fees for Fiscal Year 2003; Final Rule, 67 Fed. Reg. 70847, 70849 (November 27, 2002).

The current fee schedule is accessible from: <http://www.uspto.gov/main/howtofees.htm>.

If the issue fee paid is the amount shown on the "Notice of Allowance and Fee(s) Due," but not the correct amount in view of the fee increase, a "Notice to Pay Balance of Issue Fee" will be mailed to applicant. In order to avoid processing delays associated with mailing of a "Notice to Pay Balance of Issue Fee," if the response to the Notice of Allowance and Fee(s) due form is to be filed on or after January 1, 2003 (or mailed with a certificate of mailing on or after January 1, 2003), the issue fee paid should be the fee that is required at the time the fee is paid. If the issue fee was previously paid, and the response to the "Notice of Allowance and Fee(s) Due" includes a request to apply a previously-paid issue fee to the issue fee now due, then the difference between the issue fee amount at the time the response is filed and the previously paid issue fee should be paid. See Manual of Patent Examining Procedure, Section 1308.01 (Eighth Edition, August 2001).

Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

# ALLOWED REVIEW

Applicati n Number

10/086,148

N tice Of All wance

01-Aug-03

Reviewer

Jones, Mary Beth

## Section III, 35 U.S.C. 102

### Correctness f 35 U.S.C 102 Rejecti ns

Were all 35 U.S.C 102 rejections reasonable?

☐ Yes ☐ No

(No indicates potential clear error)

If no, indicate the problem (check all that apply)

- ☐ Claimed features not found in the reference.
- ☐ Wrong subsection of 35 U.S.C. 102 used.
- ☐ Date of the reference no good.
- ☐ Inherency applied improperly.
- ☐ Improper official notice.
- ☐ Other

Comments:

### Clarity of 35 U.S.C 102 Rejections

Were all 35 U.S.C. 102 rejections formulated in a clear manner?

☐ Yes ☐ No

(No indicates potential clear error)

Were claim limitations matched to the art?

☐ Yes ☐ Sometimes ☐ No

Was any statement of inherency clearly explained?

☐ Yes ☐ Sometimes ☐ No ☒ N/A

Comments:

### 35 U.S.C 102 Rejection(s) That Should Have Been Made

Give a brief description of the proposed 35 U.S.C. 102 rejections(s) that should have been made:

It appears that at least claims 1,2,4,8,9,21-23 and 27 should have been rejected under 102(b) as anticipated by Nagaraj et al (US 5,723,078). As the examiner correctly noted in the first office action, US 078 teaches all the limitations of claim 1 except it does not explicitly teach that the groove spacing, geometry and wall angle with the surface is "predetermined" as set out in claim 1. However, the reviewer believes that when US 078 is carefully considered as a whole, it is inherent that the groove spacing, geometry and wall angle is indeed "predetermined" in US '078. For example, US 078 teaches at col 5 lines 1-3 that a mechanical indenter or cutting tool can be dragged over the surface "to form an array of grooves". Clearly the artisan, by the choice of the cutting tool and how he decides to operates it, inherently "predetermines" the groove spacing, geometry and wall angle (eg, are the groove walls in the shape of a V so the walls are at an angle or do the grooves have straight walls at 90 degree angle to the surface) in the "array of grooves". Likewise col 5 lines 14 to 16 of US 078 teaches one may use a laser to form a "groove pattern". The reviewer believes it is inherent that the artisan would have predetermined (that is, decided in advance) the groove pattern before s/he operates the laser to make the "groove pattern". With respect to claim 8, note col 5 lines 45-50. With respect to claim 9, note col 4 lines 46-50. With respect to claim 27, note this is a product by process claim. Thus, it is appropriate to reject such a claim under 35 USC 102/103 over a product/structure that appears to be equivalent, as here, in US 078, and the burden is properly shifted to applicant to prove that the resulting product is materially different (see MPEP 2113, and note d to examiner form paragraph 7.27).

Origin of Prior Art used in the proposed 35 U.S.C. 102 rejection(s) above

☒ of record

☐ not of record (attach search logic/documentation)

☐ East

☐ EPO

☐ Other

☐ West

☐ JPO

☐ NPL

☐ Derwent

Comments:

**ALLOWED REVIEW****Applicati n****Number**

10/086,148

**Art Unit**

3726

**N tice f****All wance**

01-Aug-03

**Examiner**

ROSENBAUM, IRENE C

**Reviewer**

Jones, Mary Beth

**Omitted Rejections**

**Is there a potential clear error for omitting a rejection? (The rejection you propose must be reasonable)**

☒ Yes ☐ No

If yes, check all that apply

- ☒ 35 U.S.C. 102
- ☒ 35 U.S.C. 103
- ☐ 35 U.S.C. 112, first paragraph, written description
- ☐ 35 U.S.C. 112, first paragraph, enablement
- ☐ 35 U.S.C. 112, second paragraph
- ☐ 35 U.S.C. 101 (utility)
- ☐ 35 U.S.C. 101 ( non-statutory subject matter)
- ☐ Double Patenting (statutory, ODP)
- ☐ Other (e.g., Best Mode)



**ALLOWED REVIEW****Applicati n Number**

10/086,148

**N tice Of All wance**

01-Aug-03

**Reviewer**

Jones, Mary Beth

**Section III. 35 U.S.C. 103****Correctness of 35 U.S.C 103 Rejecti ns**

Were all 35 U.S.C 103 rejections reasonable?

☐ Yes ☐ No**(No indicates the presence of a potential clear erro**

If no, indicate the problem (check all that apply)

- ☐ Claimed features not found in the reference.
- ☐ References not combinable.
- ☐ Date of the reference no good.
- ☐ Improper motivation.
- ☐ No reasonable expectation of success.
- ☐ Improper Official Notice taken.
- ☐ Other

Comments:

**Clarity of 35 U.S.C 103 Rejections**

Were all 35 U.S.C. 103 rejections formulated in a clear manner?

☐ Yes ☐ No**(No indicates potential clear error)**

Were claim limitations matched to the art?

☐ Yes ☐ Sometimes ☐ No

Were the differences clearly stated?

☐ Yes ☐ Sometimes ☐ No

Was the modification or combination of references clearly explained

☐ Yes ☐ Sometimes ☐ No

Was the motivation/reasons for obviousness present?

☐ Yes ☐ Sometimes ☐ No

Comments:

**35 U.S.C 103 Rejection(s) That Should Have Been Made**

Give a brief description of the 35 U.S.C. 103 rejection(s) that should have been made:

It appears that a rejection under 35 USC 103(a) of all the claims over Nagaraj et al (US 078) as needed in view of Skelly et al (US 5,419,971) would be proper. US 078 teaches localized repair of the turbine blade where the thermal barrier ceramic coating has been damaged, by using a mechanical tool or laser to cut an array of grooves or a groove pattern into the bond layer to improve adhesion of the ceramic coating that will be applied to repair the localized damage. US 971 teaches that upon initial application of the ceramic thermal barrier coating to a bond layer on a component such as a turbine blade (col 4 lines 56), it is important to use a predetermined groove pattern to obtain optimum "crack-impeding geometries" (see abstract and col 3 lines 20-34, col 4 lines 11-13). The preferred method is to use a laser (see col 3 lines 64+). Thus, it would have been prima facie obvious when doing the localized repair of US 078 to have use a predetermined groove spacing, geometry, wall angle, as such is taught in US 971 to be important in providing a turbine blade ceramic thermal barrier coating layer onto a grooved bond layer so that the ceramic layer will not crack in operation. One would be motivated by the reasonable expectation of having a superior repair with use of a groove pattern as taught in US 971 to be advantageous for applying the ceramic layer onto the bond coat layer to prevent/delay crack propagation through the ceramic layer. Note US 971 teaches a groove spacing of 5 mils at col 9 lines 20 to 22, with a wall angle between 15 and 90 degrees (see Figs 2, 4, 5 - appears to be straight wall grooves in Fig 2, 4, V shaped grooves in Fig 5), the grooves are not thicker than the bond coat 34 of Fig 2 etc. - compare to groove spacing etc set out in present claims 10 -14, 24. Note it appears inherent, that one must operate the laser beam at an angle from 0 to 75 degrees as recited

in claims 14 and 24, in order to obtain the wall angle of 15 to 90 degrees which is suggested in US 971, or alternately, it would have been prima facie obvious optimization of a known result effective operating parameter to choose an appropriate incidence angle for the laser beam machining of the grooves. Likewise, with respect to claims 6, 7, it appears that optimizing the known result effective parameters of power level, speed of laser cutting, etc, especially since these are being used in the same context of making grooves with a laser as taught in each reference, would have been prima facie obvious, especially in the absence of any evidence of criticality or unexpected results from the use of these parameters. With respect to claim 5, US 971 teaches the use of an excimer laser (col 3 line 67).

Origin of Prior Art used in the proposed 35 U.S.C. 103 rejection(s) above

☒ of record

☐ not of record (attach search logic/documentation)

☐ East

☐ EPO

☐ Other

☐ West

☐ JPO

☐ NPL

☐ Derwent

Comments: